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COMMUNICATIONS

ESSENTIAL CONSIDERATIONS IN REGARD TO THE FIELD OF VISION: CONTRACTION OR DEPRESSION?

BY

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THE increasing interest which has been taken in the field of vision during recent years indicates that the value of examination of the field, ordinarily spoken of as perimetry, or by some, and with more justification, as campimetry, as a clinical procedure is becoming more widely appreciated.

This being the case it is desirable to scrutinize our attitude towards some fundamental points in the purely clinical aspect of this form of subjective examination. When we begin to think of what the field of vision is and of what we are doing when we test it, a host of more or less scientific and abstruse problems arises, most of which fortunately may be left on one side. Certain essentials, however, must be grasped if perimetry is to be understood as well as practised.

Before we can "take the field" and interpret our results with real advantage it is desirable to have clear ideas as to what we are undertaking and some kind of mental picture will be found most helpful. Any attempt at a complete explanation of the field, with its physics and its psychology, is likely to produce more confusion than elucidation; we must aim at a simple image which

will illustrate the essential features in such a way as to assist the clinician.

To define the field of vision as the projection into space of the light rays which fall upon the sensitive retina during fixation of the eye may be accurate, as far as it goes, but is clinically sterile. It will be found more useful to regard it as a portion of an immense hollow sphere upon the inner surface of which is spread a panoramic picture of external objects showing the central feature depicted with minute detail and vivid colouring while objects at increasing distances from the centre are indicated with correspondingly diminished clearness and duller hues. But the most helpful mental picture of the visual field is obtained when we regard it from the standpoint of visual acuity.

We may imagine the field as an island of vision surrounded by a sea of blindness. The coastline is somewhat ovoid in shape and rises steeply so that the island is surrounded by cliffs vertical at one side, sharply sloping at the other. Above the cliffs is a gently sloping plateau which rises more rapidly again towards the somewhat eccentrically situated summit. This is crowned by a sharp pinnacle whose sides curve steeply upwards from a narrow base. To one side of this point is a pit with sides almost vertical at first but soon becoming perpendicular which extends down to the level of the surrounding sea. To an observer situated in the air above the pinnacle a panoramic view of the whole island is presented. On the shore only large objects can be seen and colours cannot be distinguished. Immediately within the coastline along the top of the cliffs smaller objects are visible and colours can be recognised if in large enough patches, and as the neighbourhood of the summit is approached smaller and smaller objects become apparent until at the apex of the pinnacle the most minute details can be detected. Imagine the surface of such a hill not stationary but subject to slight fluctuations in height and we obtain a glimpse of the normal field of vision.

If we choose to exercise our imagination still further and picture to ourselves this hill under abnormal conditions we must think of it as distorted or partially destroyed by subsidence. Depressions of every variety may occur on its surface, of all shapes, sizes and depths, with straight, curved or irregular margins, with sloping or steep sides, isolated or extending to the shore or to the pit or partly or wholly involving the central pinnacle. Or the coast may be encroached upon by the sea, eroded as it were, while the unaffected parts of the island retain their original altitude and configuration; or combinations of depression and erosion may occur.

If we think of the visual field in this way it becomes apparent that its examination entails not merely the delimitation of the

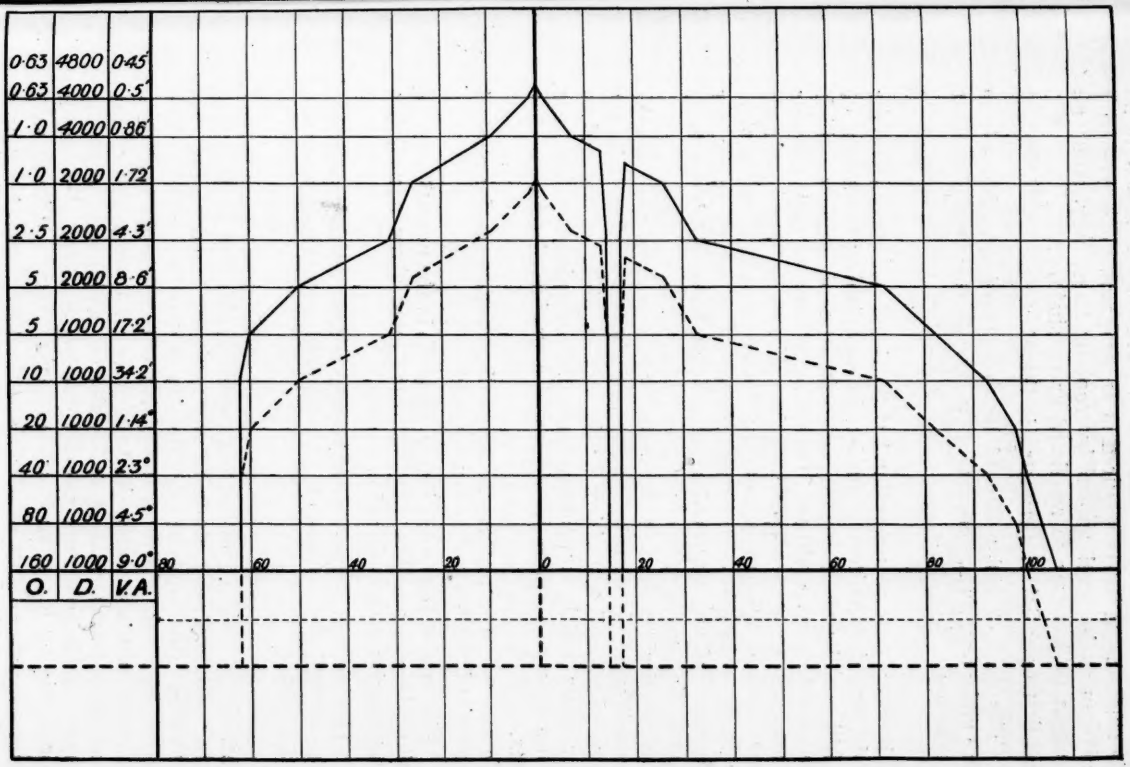

FIG. 1.

The field of vision in horizontal section. Modified from Roenne's figures (3). The continuous horizontal base line indicates the extent of the field in degrees, the central vertical line the acuity of vision. The figures in the side columns indicate the distance of the test object in mm., O, its distance from the eye in mm., D, and the visual angle subtended at the nodal point, V.A. Beginning with an angle of 9° the visual angle is halved for each successive isopter ; a modification is introduced by the substitution of 1/2000 and 1/4000 for the original figures (Roenne) of 2·5/4000 and 1·25/4000. The interrupted line shows the alteration produced by a *uniform* depression of the acuity over the whole field. The blind spot is shown as a pit with crateriform mouth.

coast line of the island or "perimetry," but the measurement of its whole surface. What is required is an orographical survey with all differences in level shown by contour lines, neglecting no depression be it never so restricted or so shallow.

The first essential of perimetry is therefore:

I. The field of vision should be thought of as a hill whose surface sinks and rises, and not as an area whose extent contracts and expands.

It is now easy to understand that visual acuity stands for altitude, and that perimetry consists in establishing the height of the hill and its slope by the determination of isopters which correspond to contour lines. In the same way as each contour line encloses an area of not less than a certain height so each isopter encloses an area of not less than a certain visual acuity. This is the principle of quantitative perimetry which fulfils our requirement of an orographical survey, and for which we have to thank Bjerrum and Roenne.

The practical method of determining the isopters need not be discussed here. It may be emphasized, however, that it is not the use of a small test object or the use of white as opposed to colour tests which constitutes quantitative perimetry, but the determination of isopters by means of a graduated series of test objects.

We are now in a position to affirm the characters—for clinical purposes—of the normal uniocular field.

1. The external or lowest isopter must lie in the normal average position; in other words, the periphery must show normal but not necessarily maximal limits.

2. The internal isopters must occupy normal average positions for the stimuli they represent, *i.e.* the field must show a normal average slope.

3. The central peak of the field must attain an average normal height. This does not mean that the recognition of alphabetical or other symbols must attain to any arbitrary standard but that the fixation area is to be regarded as part of the field. The presence, however, of 6/9 or 6/6 vision with a normal field periphery does not necessarily indicate a normal condition of the central field, for normal central vision is sufficiently acute to undergo considerable impairment before an obvious reduction is demonstrable by a test such as Snellen's types. Where such impairment exists the patient is usually aware that his vision is not as good as previously and the central isopters will be found altered in position although the test card may show excellent

acuity. Similarly expressions such as " V=6/24, field normal" are unsatisfactory if without explanation.

4. Colour vision and the position of isopters for colour tests, *i.e.* the slope of the field for colour, should be normal. Here a relatively wide allowance for physiological variation is necessary, and the particular standard of ability to recognize colours possessed by the individual must be taken into account, *e.g.* congenital colour blindness may be present.

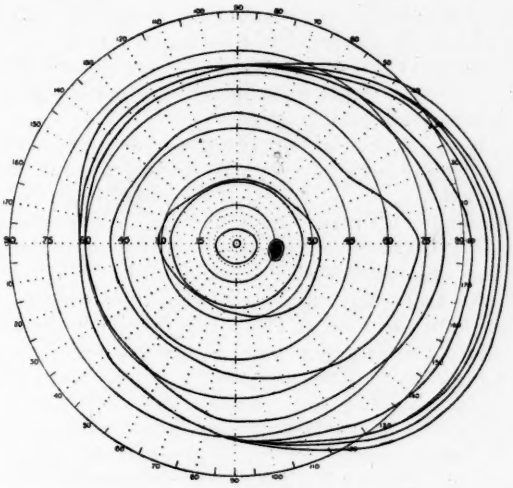

FIG. 2.

Plan of the visual field showing the same isopters as in Fig. 1.

In practice it is only necessary to determine two or three selected isopters, which should not lie close together normally, in order to establish the integrity of the field. The second essential of perimetry is:

II. The condition of the visual field whether normal or abnormal cannot be ascertained by the determination of one isopter, that is to say, by the use of one test-object.

Pathological changes in the field are usually classed as *contractions*, and *scotomata* or gaps.

Contractions may be concentric when the field retains its shape approximately but becomes smaller; irregular, partial or local;

sector-shaped and so on. In a leading text-book contraction of the field is referred to as "a pushing in of the boundary" at some point.

Reverting to our simile of a hill or island of vision standing in a sea of blindness it will be evident that depression of the island if great enough will produce a reduction in the coast line, slight at first but rapidly increasing once the cliffs become submerged and the tide flows over the sloping plateau.

From Fig. 1 it is clear that a uniform depression of the field will produce contraction at first very slight and confined to the temporal side if the periphery alone is examined. It is only when a considerable degree of depression has occurred that any concentric shrinkage of the peripheral isopters becomes manifest. But long before this stage is reached the central and intermediate isopters which are normally situated on the sloping plateau show an easily demonstrable contraction.

The early signs of general depression of the field are therefore to be sought not at the periphery but in the intermediate and central parts of the field.

Most so-called contractions of the field, whether concentric, irregular, or local, are in reality depressions which appear as contractions when only one isopter is examined. When several are determined the true state of the field is immediately disclosed. Since the slope of the field is less steep on the temporal than on the nasal side a uniform depression, when sufficiently advanced to alter the peripheral boundary, will produce restriction earlier and to a greater extent on the temporal side. Before the stage is reached at which the nasal isopters also begin to show contraction the limitation may appear to be confined to the temporal field simulating a temporal, or if bilateral, a bitemporal "contraction." This is, of course, not the same thing as bitemporal hemianopia, which is distinguished by its own special characters. The difference is shown at once by the positions of the internal isopters.

Uniform or approximately uniform depression is not common and when associated with a normal and healthy eye always suggests the probability of a functional cause as it is unlikely, though presumably not impossible, that a local organic interference will produce a uniform impairment of conductivity of the optic nerve. At any rate, from the point of view of diagnosis, the choice of lesions would be limited.

As a rule depression is more pronounced in one part of the field and irregular or sector-shaped contractions are really local depressions. When the depression is confined or almost confined to the periphery an approximation to true contraction is produced. Here again only the determination of internal isopters can show the real character of the alteration.

A little recognized field change is central depression. The peripheral isopters occupy their normal positions but the central isopters are contracted. Direct vision by Snellen's types may be good, from 6/12 to 6/6 partly or thereabouts. There is no demonstrable scotoma as ordinarily understood, but the condition really comes into the class of relative scotomata of low intensity.

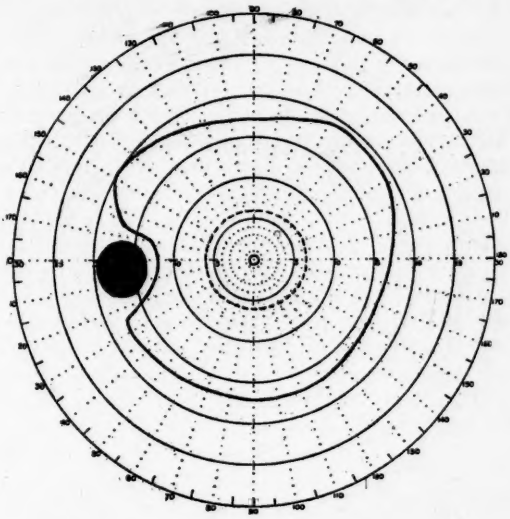

FIG. 3.

Central depression after retrobulbar neuritis. The periphery showed normal limits 1/330 being seen temporally to 85°. The continuous line shows the field for 5/2000 white, the interrupted line that for 1/2000 white, and the small central area the field for 5/2000 red. These isopters are greatly contracted. The discrepancy between the results of the 5/2000 and 1/330 tests (which subtend almost the same visual angle) shows that the depression is not limited to the central area. Central vision 6/9.

It is present in cases of apparent complete recovery after retrobulbar neuritis, associated with good central vision and relative pallor of the disc, and, in a minor degree, is common, if not constant, as the only field change in the early stage of chronic glaucoma before the appearance of nerve-fibre bundle defects.* It may be that the depression is general, but more easily detected in the central field.

* While correcting the proofs of this article I noticed that similar observations have been made by Ransom Pickard, *Brit. Med. Jl.*, 1923, Vol. II, p. 129.

True contraction of the field, the "pushing in of the boundary" or coast-erosion type of change, must be very rare or at any rate much less common than the familiar use of the term suggests. Personally, I have never met with a case nor have I ever seen one reported. If the field "contracts" from without the edge becomes perpendicular and the seeing part remains unaltered. The isopters within the restricted periphery would retain their normal positions

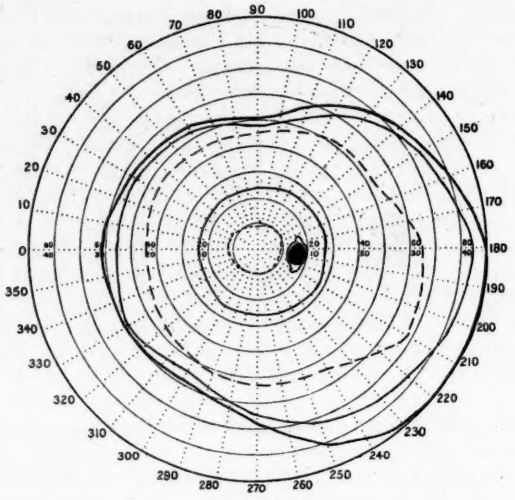

FIG. 4.

Depression in chronic glaucoma. L.E. enucleated for absolute glaucoma. R.E. watched since then for 22 months. Tension usually about 30 to 35 Schiötz. Central vision has dropped from 6/9 plus to 6/18 during the period of observation. Disc slightly pale, but no sign of cupping. No scotoma of Bjerrum type was ever detected. Isopters shown from without inwards for 20/330, 5/330, 1/330, 2/2000. 1/2000; corresponding visual angles are 3°28′, 52°1′, 10°4′, 3°4′, 1°7′. The 2/2000 isopter gives an amblyopic area around the blind spot with projections corresponding to the large vessels.

and the central peak its normal height. It is very doubtful if this kind of field change ever occurs as the result of direct organic interference, though it may be present as a final result in certain conditions, such as injuries of the visual path or absolute homonymous hemianopia. But even the latter is more comparable to a "fault" (in the geological sense) with subsidence than to a shrinkage from the periphery inwards. When the field is limited by

the brow or nose (relative field) the peripheral isopters coincide and the margin is perpendicular. The possibility of a purely functional change should be carefully considered when a peripheral concentric or temporal "contraction" with normal remaining field is found.

Scotomata are, of course, local depressions. In the sense of a gap in the field a scotoma is a depression which is surrounded by an area in which vision is normal or less depressed. A scotoma is, therefore, enclosed by its own isopters which are approximately concentric and isolated from the isopters of the field as a whole, as in the case of the blind spot. It is often inconvenient to adhere strictly to the letter of a definition and the term scotoma is freely used with regard to field defects which extend to the periphery. In such scotomata the peripheral isopters turn inwards along the side of the defect. To revert again to our simile we may imagine a crater on the hill or a lake draining through a valley or cleft to the shore.

In all forms of depression the earliest signs are most easily demonstrable in that part of the field where the isopters are normally most widely separated. This is well within the periphery and in all cases of disease in which "contraction" may be expected or should be excluded this part of the field should be examined. Where a peripheral restriction is already manifest the positions of the internal isopters must still be determined, otherwise only a part—and too frequently not a significant part—of the field changes is disclosed.

The third essential is:

III. Changes in the field of vision are to be regarded and measured as depressions not as contractions.

The measurement of depressions is carried out on the same quantitative plan, test-objects subtending larger visual angles being used for deep depressions and others subtending smaller angles for shallow depressions. Otherwise the shallow depressions may be missed altogether and the depth of the deep ones may remain undiscovered. The choice of test-objects is, therefore, important and they must be adapted to the conditions present in each individual case.

In the normal field the isopters for colour are comparable with those for white, except perhaps at the extreme periphery. Owing to the size of the object usually employed, colour isopters are internal isopters and in depression of the field, as we have seen, the apparent contraction is more pronounced in the internal isopters. Thus, although the normal relationship of the isopters for colour and for white may not be disturbed, there may seem to be an excessive impairment of colour vision. On the other hand.

in pathological conditions a true disproportionate depression of the colour field is common. For this reason it is desirable, as Roenne[2] *points out, in estimating* the relationship of isopters for colour to those for white, to use objects whose isopters normally *lie together* (e.g., *10/300 red and 10/2000 white*: Roenne[3]). The statement that contraction of the colour field exceeds or precedes contraction of the field for white must, therefore, be carefully scrutinized in relation to the sizes of the objects employed. If the colour test used gives an isopter lying normally considerably above that corresponding to the white test an apparent undue loss for colour may be discovered quite apart from any special impairment of colour perception.

The fourth essential is:

IV. In all perimetric work the size of each test object and its distance from the eye should be carefully selected with a view to the requirements of the individual case and *should be recorded*.

LITERATURE

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2. ***Idem.**—"Gesichtsfeldsstudien über das Verhältnis zwischen der peripheren Sehschärfe und dem Farbensinn speziell die Bedeutung derselben für die Prognose der Sehnervenatrophie." *Ibid.*, Vol. I., p. 154, Feb., 1911.
3. ***Idem.**—"Zur Theorie und Technik der Bjerrumschen Gesichtsfelduntersuchung." *Arch. f. Augenheilk.*, Vol. LXXVIII, Pt. iv., 1915.
4. ***Traquair.**—"The Quantitative Method in Perimetry with Notes on Perimetric Apparatus." *Ophthal. Rev.*, p. 65, 1914.

BUEDINER'S MODIFICATION OF DIFFENBACH'S OPERATION FOR EARLY EPITHELIOMA OF THE LOWER LID

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AN epithelioma of the lower lid satisfactorily dealt with by Buediner's operation is perhaps sufficiently uncommon to merit a published note. Briefly it consists in removal of the lower lid and its conjunctiva by two incisions starting at the canthi and meeting on the cheek below. The triangular skin defect thus produced is made good by carrying a horizontal incision from the outer canthus for a distance somewhat greater than the length

*Bibliography appended.

of the lid margin, and another from the termination of this downwards parallel to the other side of the triangle. The flap thus defined is dissected up, slid nasalwards, and anchored with its superior side in the position originally occupied by the free edge of the lower lid. Before anchoring it, however, the tarsus and conjunctiva are replaced by a composite flap from the back of the ear. This consists of semilunar pieces of skin and cartilage, still attached to each other, and having a common straight edge somewhat shorter than the edge of the cheek flap. The skin is approximately three-quarters of a circle, the cartilage one quarter. This flap is applied to the deep surface of the skin flap from the cheek, straight edge to straight edge, the surface epithelium of the ear skin towards the globe. It is held in this position by two or three double-armed sutures, which are passed from behind

forward a short distance below the free edge, and tied externally on beads. The triangular, bare area on the cheek is filled in by a graft as soon as possible. Naturally, such a procedure can only be adopted in the case of a very limited malignant growth such as that described below :—

B.P., European, aged 50, noticed a small wart on the skin of the right lower lid near the lashes on September 20, 1920. On October 20, 1920, there was a distinct yellowish hemispherical elevation two-and-a-half mm. in diameter about the centre of the lid, and one mm. below the lashes. The conjunctiva was not involved. On the summit there were a few bleeding papillae. The patient stated that he had scratched a tiny scab off it. A small wedge was removed from the growth which on examination proved to be epitheliomatous. The preauricular gland was normal on section. On November 6, 1920, Buediner's operation was performed. Further, the horizontal incision was continued to the

external ear and here a vertical incision was made an inch each side of the former one. This latter modification was made in order to gain access to the subcutaneous tissues and preauricular gland. These were freely dissected away. This was perhaps the most tedious part of the operation, and, as might have been expected, was accompanied by considerable haemorrhage. The extensive undermining did not lead to any subsequent trouble. The angles of the cheek flap were held in position by two deep sutures tied over rubber tubing, and although at the time of operation there was no tension at the inner canthus, the inner angle of the flap commenced to drag outwards within a day or so. This might have been avoided if other supporting deep sutures had been placed internally. It appeared to be chiefly due to contraction in the triangular bare area, and so this was levelled by pressure and

planted with Reverdin's grafts. On November 20, 1920, the skin flap was freed at its inner and outer sides and the inner angle accurately readjusted. An upward and inward drag was secured by deep sutures whilst the same object was aided by pressure over the granulating area. On November 24 this was planted with grafts and subsequent progress was uneventful. The triple flap contracted slightly, but sufficient redundant tissue had been taken to allow for this. The cosmetic result was somewhat impaired by the extent of the incision, but an efficient lower fornix was established allowing free movement and easy closure. There was considerable oedema of the outer angle of the upper lid which persisted for a long time. It would appear to be unnecessary to anchor the upper lid with a stitch, as good lubrication and careful bandaging suffice to prevent damage to the cornea.

The cicatricial contraction during the healing of the raw area is, doubtless, the weak point in the operation. Partial closure of

the skin defect by deep sutures does not seem to be desirable. Flat pressure with early grafting is probably preferable. It might perhaps be better to utilize a large cheek flap with an upper border much longer than required, thus throwing the raw area further out, or to make a second cheek flap to fill in the raw area left by the first. There does not appear to be any advantage in shaving down the ear cartilage to a thin lamella, but sufficient allowance must be made for the shrinkage of both skin and cartilage, and a very much bigger flap of skin should be supplied than, in the absence of experience, one would have thought necessary. There is no need to fear deformity of the ear if strict asepsis is observed. Very careful dressings are essential, to keep the cornea lubricated, to prepare the granulating area for grafts, to keep these *in situ* when planted, and to prevent large stitch erosions. Dilute yellow oxide ointment, vaseline, gauze netting, and wet picric acid dressings were employed for these various purposes. Seen three months after operation, the case presented the features shown in the photographs. The obvious defects as observed at this time were: irritation due to the outermost hairs of the upper lid, inaccurate apposition of the outer angle, slight oedema of the upper lid, and shrinkage of the ear flap with a slight entropion. These do not appear to detract from the practical efficiency of the result. The cornea is perfectly covered during closure of the lids.

COUNCIL OF BRITISH OPHTHALMOLOGISTS

Interim Report on the Administration of Optical Benefits by Approved Societies

In accordance with Section 37 of the National Insurance Act, 1911, an Approved Society in respect of which a surplus, certified by the Government Valuer to be disposable, is found on valuation, may submit to the Minister of Health a scheme for distributing out of such surplus any one or more additional benefits. Amongst these additional benefits is "the payment of the whole or any part of the cost of optical treatment and appliances" (Statutory Rules and Orders, 1921, No. 877).

In October, 1921, the Council of British Ophthalmologists were informed that certain Approved Societies were entering into negotiations with sight-testing opticians for the provision of optical benefit, i.e. examination of the eyes and provision of glasses.

The Council immediately wrote to the Ministry of Health on

the subject. The following is an extract from a letter received from the Ministry in reply to this communication:

> "Societies which have adopted this particular additional benefit in their schemes have been required, in general, to adopt a schedule in which it is provided that:—
>
> > " 'Optical treatment and appliances' shall not in respect of members resident in Great Britain, include any treatment or appliance provided as part of medical benefit under the National Health Insurance Acts; and further,
> >
> > "Payment in respect of the cost of an optical appliance shall only be made on the production of a prescription from a qualified practitioner or a hospital, except in cases where the claim is in respect of the renewal of an appliance.
>
> "The Department has not, however, insisted on the inclusion in the scheme of the last-quoted paragraph in any case where a Society desired its omission."

Further correspondence elicited the fact that the above schedule is not contained in any Statutory Rules or Orders, but is merely a model schedule drawn up by the Insurance Department of the Ministry of Health for the guidance of the Approved Societies, so that there is no legal obligation to insist on the acceptance of the paragraph requiring the production of a prescription from a qualified practitioner or a hospital.

Copies of the correspondence between the Council and the Ministry were forwarded to the Departmental Committee on the "Causes and Prevention of Blindness."

In October, 1922, an ophthalmic surgeon wrote to inform the Council that he had been invited by a large Approved Society to act as their consultant ophthalmic surgeon, to whom cases could be sent which the opticians felt they could not treat, the optical benefits hitherto provided by them having been carried out by opticians. The Council informed him that they did not approve of the proposal.

In the spring of 1923 Sir George Berry, M.P., in an informal interview with the Minister of Health laid the views of the Council before him and received a sympathetic reply.

In June, 1923, resolutions passed by the North of England Ophthalmological Society were received by the Council.

In July a committee was appointed by the Council "to consider the question of Administration of Medical (Optical) Benefit by Approved Societies in so far as it affects Ophthalmic Practitioners." The following interim report of this committee was presented at the meeting of the Council and adopted:—

"The Committee considers that in the list of additional benefits which may be provided by Approved Societies under the National Insurance Act,* it is desirable that for the phrase *optical treatment and appliances* that of *optical appliances prescribed by a medical man* should be substituted.

"It recommends that the Council should apply to the Ministry of Health to effect this alteration, pointing out that it is in accordance with the following clause in the model schedule relating to optical treatment issued by the Insurance Department to Approved Societies:

"Payment in respect of the cost of an optical appliance shall only be made on the production of a prescription from a qualified practitioner or a hospital, except in cases where the claim is in respect of the renewal of an appliance.

"Also that the correction of errors of refraction, i.e. optical treatment, cannot be safely carried out without a full knowledge of diseases of the eye, and that at some future date it will be desirable to include ophthalmic treatment amongst the benefits for which provision is made."

The Council proposes to take steps to bring this report to the notice of the Minister of Health and to ask him to receive a deputation.

The dissolution of Parliament and the General Election have prevented them taking any action during the past few weeks.

ANNOTATION

Miners' Nystagmus

In our issue of last November we published some comments on a recent article in the *Lancet* discussing the Second Report of the Miners' Nystagmus Committee of the Medical Research Council. The Committee in that report have to deplore the untimely death of Dr. Rivers. This leaves them without the assistance of any expert in psychology. The findings of this second report strongly emphasize the necessity of appointing a successor. To quote from the Report:

"In Great Britain the disease was first added to the Third Schedule of the Workmen's Compensation Act in 1907. Experience has taught that after a disease is placed in this category several years elapse before claims reach a steady level. In this case a

*Statutory Rules and Orders, 1921, No. 877, Clause 17 of Schedule "The payment of the whole or any part of the cost of optical treatment and appliances."

level for fresh claims would appear to have been reached by 1911. But a disturbing factor was introduced in July, 1913, just at the time when in Germany admission to compensation was restricted. This factor was a broadening of the basis for claims, due to altering the nomenclature of the disease in the Schedule from 'Nystagmus' to 'The Disease known as Miners' Nystagmus . . . whether the symptom of oscillation of the eyeballs be present or not.' The effect was to include cases claiming compensation for psychoneurosis. Claims for compensation immediately rose; but before the new level could be established the war intervened, interfering with the mining personnel."

The Report goes on to point out that oscillation of the eyes *per se* is not necessarily a cause of incapacity; no constant relation exists between the amount of oscillation and knowledge that there is oscillation. Mention is made of individuals with the most marked oscillation even when looking down in daylight, who refuse to give up work and say they are more comfortable when working. One such man is said to play cricket for his colliery. In the summary the Report points out that a large proportion of underground miners exhibit signs which, *if complained of*, might establish a claim for compensation. They point out how such cases, when affected with diseases for which compensation is not provided, swell the number of compensated nystagmus claims. The same point is emphasized by the statistics of the various Indemnity Companies showing the high death rate among compensated nystagmus cases.

The Report expresses the opinion that there is no sound evidence of increase in the clinical entity, miners' nystagmus, and says that " the standard of physical signs which is in vogue in this country for deciding whether any case should be certified as suffering from miners' nystagmus too readily admits psychoneurotic cases to whom harm and not benefit accrues from compensation. A stricter standard based on physical signs should be adopted."

The concluding part of the Report by Mr. Pooley establishes the fact that " errors of refraction in themselves have no effect whatever either on the incidence of miners' nystagmus or on the age at which incapacity commences from miners' nystagmus."

In the issue of the *Lancet* for November the 17th, a letter appears from Mr. Inman in which the reports of the Nystagmus Committee are criticized in that they stop short of investigating the nature and origin of the psychoneurosis so frequently associated with oscillation of the eyeballs, which, according to the Committee, is responsible for the increase of reported cases in this country and the consequent increase of compensation from £13,000 in 1908 to £343,000 in 1920. Mr. Inman speaks of £350,000 directly

and £1,000,000 indirectly, and asks: "does oscillation cause the neurosis or does the latter induce the oscillation? Is oscillation merely a physical eccentricity, or is it an essential part of the whole abnormal state? An answer to these questions may save the country so much money that pressure should be brought upon the Committee to clear up the mystery."

In an editorial the *Lancet* of the same date deals at some length with Mr. Inman's letter and concludes thus: "The complexity of the problem of miners' nystagmus is indefinitely increased if it must be investigated anew from the psychological aspect. Yet if this aspect possesses the significance that Mr. Inman suggests, there is every reason for the fullest inquiry, both on economic grounds and on account of the clinical importance of the principles involved."

Thus there would appear to be a disease, miners' nystagmus, the nature of which as far as the eyes are concerned, we, as ophthalmic surgeons, can appreciate, accurately measure and record; there is another disease, miners' psychoneurosis, of which we, as ophthalmic surgeons, have no special knowledge. As far as the evidence of the Report goes the one may exist without the other and what, if any, is the connection between them has still to be worked out by the psycho-pathologists.

ABSTRACTS

I.—GLAUCOMA

(1) **Gifford, Harold (Omaha).—Glaucoma from the absorption of senile cataract,** *Amer. Jl. of Ophthal.*, Feb., 1918.

(1) **Gifford** holds that the spontaneous cure of senile cataract is by no means so rare as is commonly supposed. He has himself seen ten cases in which practically complete absorption of the cortex has occurred. The following statement seems to crystallize what must have been a fluid kind of notion at the back of the brain of many an ophthalmic surgeon:—"This tendency for senile cataracts to undergo spontaneous absorption is so common that I think it may safely be said that while every one would develop a senile cataract if he lived long enough; so also would every one obtain a spontaneous cure if life were sufficiently prolonged." But nature's cure does not give a good percentage of visual results. Glaucoma is frequent. Such glaucoma has been supposed by some to be the cause of the absorption of the lens. Gifford holds otherwise, and refers to a number of his case histories in support of

the following conclusion :—" The occurrence of glaucoma coincident with the absorption of hypermature cataract cortex in eyes otherwise healthy, together with the long continued absence of glaucoma from the fellow eye, makes it probable that the glaucoma which has been observed in connection with the spontaneous absorption of senile cataract is the effect, not the cause of such absorption."

ERNEST THOMSON.

(2) **Bourdeaux (Amiens). Acute primary glaucoma in myopes. (Glaucome aigu primitif chez les myopes.)** *La Clin. Ophtal.*, May 10, 1919.

(2) **Bourdeaux** relates the history of an interesting case of acute glaucoma in a woman of 47 years who had already lost the sight of one eye after an iridectomy and who, after five years, developed an acute glaucoma in the remaining eye. She was highly myopic as evidenced at the time by her glasses and afterwards by the fact that there was 18D of myopia left after removal of the lens. At the time when she came under observation the lens was partially dislocated forwards so that its edge at one part appeared in the anterior chamber. One can imagine that this was a difficult problem to face. Bourdeaux made an equatorial puncture to relieve the condition, and, two days later, proceeded to his operation proper. Under cocain anaesthesia he made a wide incision with conjunctival flap, though it was difficult to avoid the lens. He then hooked the lens with Kalt's forceps, drew it out in its capsule and performed a large iridectomy without any loss of vitreous. The patient who, not less than the surgeon, is to be congratulated, left hospital in ten days and secured vision with glasses equal to 6/10ths. Ophthalmoscopically there was a highly myopic fundus and the disc was pale and excavated in the temporal segment. The writer speculates on the sequence of events but comes to no firm conclusion.

ERNEST THOMSON.

(3) **Aboudy.—The relation between syphilis and glaucoma. (Relation entre syphilis et glaucome.)** *La Clin. Ophtal.*, September, 1919.

(3) **Aboudy** has satisfied himself that a certain number of cases of glaucoma are brought about by blockage of the excretory channels by choroidal inflammatory products in cases of syphilitic choroiditis. From what the author says it appears to be his opinion that in such cases the tension should be reduced as much as possible by non-operative means and that then a regular course of repeated intravenous injections of cyanide of mercury should be commenced. In one case Abadie (Abadie of Paris, not Aboudy the writer), carried

out such injections of 1 per cent. cyanide amounting to 60 injections per annum for four years. Previous to this treatment there had been several "crises" in spite of iridectomy, whereas, after the cyanide treatment, there has been no attack since 1916. Two other cases of this type are related in which the cyanide treatment stopped the glaucomatous process. The article is quite suggestive, though one would anticipate that the average patient would be found unwilling to submit to such severe treatment.

ERNEST THOMSON.

(4). **Karelus, Casimir (Cracow).— The value of the criss-cross posterior sclerotomy of Wicherkiewicz in cases of chronic glaucoma. (Valeur de la sclérotomie postérieure croisée d'après Wicherkiewicz, dans les cas de glaucome chronique.)** *Rev. Gén. d'Opht.*, July, 1921.

(4) The reviewer has translated the word *croisee* in the title as "criss-cross" because this expression seems best to express in English the description of the operation devised by Wicherkiewicz in 1908, and which seems to have been given the sufficiently explicit Latin name of "sclerotomia cruciata multiplex." (*Amer. Encyclop. of Ophthal.*) **Karelus** here points out that while Wicherkiewicz took various opportunities at meetings of oculists to bring his operation to notice, he had very little material to deal with. Majewski, the present professor of ophthalmology at Cracow, has carried on his predecessor's work so that the number of operations performed by this method is 150. Leaving out all details as to anaesthetics, the particular posterior area of sclera chosen, the making of the conjunctival flap, and the doings of the assistant, one may quote the essential details of the operation, which is, perhaps, not so well known as it should be. "The operator, keeping always to the meridional direction, makes four or five incisions into the sclera separated by an interval of 2 mm., and then other incisions perpendicular to the first. All of these incisions involve only three-fourths of the thickness of the sclera and form a sort of criss-cross pattern (*Carrelage*). Then the incisions are deepened, usually those in the middle, until the choroid appears at the bottom of the wound, and, with the point of a knife, the edges of this incision are separated. The conjunctival flap is sutured in position. Massage of the eye is employed in order to prevent consolidation of the wound. The author has never seen any complications with this operation. A large filtering cicatrix is produced which diminishes or completely abolishes retention of fluid in the posterior part of the eye. The pupil, which formerly perhaps did not contract, even under pilocarpin, now contracts of its own accord, sometimes even *ad maximum*.

This method was at first confined to cases of chronic glaucoma, but was afterwards extended to all forms up to the number of 150 cases altogether. Of these 150 cases 55 were cases of absolute glaucoma with no vision either before or after the operation. For the sake of brevity they may be omitted here and attention confined to the statistics which the author gives regarding the 95 others. The results are divided into three categories, namely: (I) In which there was lasting improvement in acuity and field. (II) In which progress of the disease was stopped, the acuity and field remaining the same. (III) In which the disease progressed in spite of the operation. The conditions operated upon are divided into simple glaucoma, chronic inflammatory glaucoma, and hydrophthalmos and buphthalmos. It seems to be worth while to reproduce the author's percentage table of these 95 cases in full.

Simple glaucoma:

1st group 87 per cent.
2nd „ 10 „
3rd „ 3 „

Chronic inflammatory glaucoma:

1st group 100 per cent.

Both above groups together:

1st group 87·7 per cent.
2nd „ 8.8 „
3rd „ 2·5 „

Hydrophthalmos and buphthalmos:

1st group 12·5 per cent.
2nd „ 87·5 „

Total of the above:

1st group 75·8 per cent.
2nd „ 22·1 „
3rd „ 2·1 „

The author compares these figures with those of Römer who, in dealing with various methods of operating for simple glaucoma, had found that 33·7 per cent. retained their vision (but were not improved in vision), while 66·3 per cent. became worse. Further, the method of Wicherkiewicz presents no danger at all.

ERNEST THOMSON.

(5) **Galetski-Olin, Dr. Hanna (Helsingfors). Experiences with iridencleisis, iridotasis, sclerectomy and trephining.** (**Erfahrungen über Iridenkleisis, Iridotasis, Sklerektomie und Trepanation.**) *Klin. Monatsbl. f. Augenheilk.*, Jan.-Feb., 1922.

(5) **Galetski-Olin** has analysed Prof. V. Grönholm's fistulization operations for the last fourteen years, 258 in number. The operative procedures adopted were iridencleisis as described by Holth, iridotasis as described by Borthen, Holth's limbal sclerectomy (*Annal. d'Ocul.*, July, 1909), and a trephine operation of Prof. Grönholm's own devising in which the trephine acts on the guillotine principle. Statistics are given of the various results and the following conclusions drawn:

"From this account iridotasis appears to be the least difficult operation technically and also the least liable to post-operative complications. Further the pressure is most frequently normalized after iridotasis, in 90 per cent. of the cases, and central vision is best preserved after this operation. After Elliot's operation the pressure is rendered normal much as after iridotasis, but the technical difficulties are much greater and the liability to post-operative complications is more marked. The visual results also are not quite so good.

Sclerectomy is a more severe operation and is followed in many cases by post-operative complications. Its effect on vision and pressure is less certain than is that of trephining.

Since the number of cases investigated after iridencleisis is very small, the results of this operation can only be judged with difficulty. Pressure was only normalized in half the cases, the vision however was generally preserved. As regards technique this operation belongs to the most difficult type, and post-operative complications are numerous."

The author points out that the risk of a progressive staphyloma in iridotasis can be prevented by cutting off the dome of the piece of iris that has been drawn out as recommended by Borthen in a later paper.

E.E.H.

(6) **Levinsohn, Dr. G.—On the pathogenesis of glaucoma.** (**Zur Pathogenese des Glaukoms.**) *Klin. Monatsbl. f. Augenheilk.*, April-May, 1922.

(6) **Levinsohn** considers that the study of the pathogenesis of glaucoma can best be arranged by subdivision into four main headings. (1) The proper pathogenetic. (2) The predisposing. (3) The releasing. (4) The underlying (*die unterstützenden Momente*).

With regard to the first question he attaches great importance to the flooding of the anterior exits of fluid by destroyed cell bodies

from the posterior pigment epithelium as described by him in a previous paper *(Arch. f. Augenheilk.*, Vol. LXII, p. 131), and confirmed by Köppe in his book on the microscopy of the living eye. He also draws attention to the bleaching of the iris so often observed in chronic glaucoma, of which he gives illustrative cases, as a probable source of the obstructing pigment cells. Hypertrophy of the ciliary body and all those affections which may cause destruction of the iris pigment such as diabetes, syphilis and heterochromia iridis should act as predisposing causes. The fact that they rarely do so is explained by Levinsohn on the supposition that the pigment is dissolved in so fine a state that it readily passes the exit channels.

In dealing with the question of the starting mechanism of the disease in a predisposed eye Levinsohn attaches considerable importance to the psychic factor on account of its influence in raising the blood pressure and dilating the pupil.

The fourth heading, the favouring factors, include all conditions that hinder the exit of fluid from the eye. Local blood conditions have more influence than any variations of the general blood pressure, as the latter is readily compensated. On the other hand the salt content of the blood is of great importance, a strong salt concentration having considerable effect on the intraocular pressure on account of its power of abstracting water from the eye. It is also not impossible that the hypophysis may have some action on the intraocular pressure.

E. E. H.

(7) **Snell, Albert C.—Hereditary glaucoma simplex (Juvenile glaucoma).** *New York State Jl. of Med.*, Vol. XXIII, No. 4, April, 1923.

(7) The principal point in **Snell's** paper is the contention "that the congenital type of glaucoma (buphthalmos) should not be confused with the juvenile or the latter with the senile." He lays stress on heredity as "a direct aetiological factor in juvenile glaucoma" and contrasts this with the condition found in the infantile type where direct inheritance is rare; but may we not consider it a factor in this argument that the buphthalmic are, for a variety of reasons, at a disadvantage in reproducing their species? Again, he lays stress on the smallness of the cornea in many cases of juvenile glaucoma in contrast with the large eyes of buphthalmos. The subject is a very difficult one and arguments can be adduced on both sides, but the view is widely prevalent that the large globe of the congenital cases and of others which are first noted in the early years of life are to be explained by the distensibility of the prenatal and of the very young eye. Snell's paper is a very interesting one, and the reviewer has re-read it many times to discover whether, in the

light of its statements, he can find reason to modify his view, which Snell appears to think unorthodox and misleading, that glaucoma whether met with before birth, in early youth, or in age is essentially all one. He regrets that he is unable to do so. At one pole of life we are dealing with defects of congenital origin, which must at a comparatively early age manifest themselves by glaucomatous symptoms, whilst at the other pole lie a number of cases, the great majority of which are eventually dependent for their genesis on the degenerative and other processes associated with advancing age. Running through the whole is the great factor of the departure of the eye from its anatomical ideal. This, at least, is how the case presents itself still to his mind. Others will hold different opinions.

The case reports of two families are given by Snell at some length, and are deserving of detailed study. As an outcome of his experience in these cases the author of the paper has come to the conclusion that iridectomy is of little value "and that there is a greater promise of permanently reducing tension by obtaining some form of filtrating cicatrix." He adds, "I believe that the Elliott operation should be the operation of choice in these cases." No one with large experience of buphthalmos has yet claimed for any method of operating a large proportion of success, but the reviewer has under his observation cases in which trephining has stopped the deterioration of sight and caused sufficient improvement to enable children to be educated and to grow up useful members of society. He can therefore endorse what Snell has said on this subject. With regard to iridectomy, our knowledge of the pathology of buphthalmos makes it obvious that nothing less than the production of a vicarious channel for the escape of intraocular fluid can be of any avail. Of what use is it then to remove a portion of the iris? In this most of us will agree with Snell.

R. H. ELLIOT.

(8) **Goldenburg, Michael.—Iridotasis operation for glaucoma.** *Amer. Jl. of Ophthal.*, May, 1923.

(8) **Goldenburg** has practised this operation for very nearly five years, and finds that he gets more gratifying results with it than with any other operation that he has tried in the past. For the last three years he has adopted this form of operation in every case in which it seemed possible to incarcerate the iris, but, as he points out, occasionally the iris is so atrophic that it is impossible to draw it into the wound and in such cases the operation is not indicated. In cases of acute congestive glaucoma he prefers to get the tension reduced and the eye reasonably quiet by the usual palliative measures before operating in this way. He has not, so

far, had to excise any of his eyes in which this operation had been performed, though one eye in a feeble old man was lost through haemorrhage into the anterior chamber, the tension remaining persistently raised over a considerable period of time after the operation; as this man had only perception of light and was a cripple, it is hardly fair to condemn an operation on the strength of this case.

Goldenburg's technique is as follows: The eye is prepared in the usual way, a hypodermic injection of morphin and atropin is given one hour before the operation, the eye is anaesthetised with 4 per cent. solution of cocain and a little adrenalin is instilled just before the section is made. A flap of conjunctiva is dissected from above down to the limbus as in the Elliot operation; at this stage, haemorrhage is quite free; holding the flap thus formed so as to permit the surgeon to get a view of the anterior chamber, a small keratome is passed in as near to the anterior surface of the iris as possible, making an incision in the globe of about 4 mm.; the point of the keratome is then tilted slightly downward, and as it is slowly withdrawn it is made to brush lightly the anterior surface of the iris, which will sometimes prolapse into the wound. The slower the escape of aqueous the better. A very thin-bladed single-toothed iris forceps is passed in and grasps the iris midway between the base and the edge of the pupil, and is then withdrawn just enough to keep the lips of the wound apart. It is well to force the iris into both ends of the wound as much as possible, so as to obviate the risk of its falling back into its former position. The iris is then lightly stroked away from the wound with a spatula and the conjunctival flap replaced with one or two points of suture. Atropin is instilled and the eye bandaged; the eye is dressed on the second day and atropin is again instilled. Sutures are removed on about the fifth day and atropin is continued until the eye is white.

R. R. J.

(9) **Yoshida (Kyoto). Acute glaucoma following Heine's cyclodialysis.** *Amer. Jl. of Ophthal.*, May, 1923.

(9) **Yoshida** of Kyoto reports two cases where cyclodialysis was followed by acute exacerbation of glaucoma. In six years, 22 cases of glaucoma were treated after Heine's method, and of these cases two were observed in which acute glaucoma set in immediately after the operation. The first case occurred in a female of 50 years of age, the cyclodialysis was performed early in the afternoon, and by six p.m. the patient was in an acute glaucomatous attack, with vomiting and pain. A classical iridectomy had to be performed in each eye; three years later the Heine eye had 6/36 vision and normal tension while the other eye was blind. The second case was in a female of 65 years of age, who had lost one eye from glaucoma

some years before; cyclodialysis was followed, as in the first case, by an attack of acute glaucoma the same evening; iridectomy upwards was performed, and the case did well. The author has found records of five similar cases in the literature, Heine, two cases in 20 cases of cyclodialysis, Elschnig, one case, Weekers, one case and Komoto, one case. Of these five, two were cases of haemorrhagic glaucoma. Yoshida discusses the mode of action of the operation of cyclodialysis, summarizes the views of Heine, Krauss, Salus and Wernicke, and appends a bibliography useful to those who are interested in this particular operation.

R. R. J.

(10) **Charlin, Dr. C. (Santiago).—The aetiology of glaucoma: a result of changes in the vascular system. (Die Aetiologie des Glaukoms: eine Folge von Veränderungen des Gefässsystems bei den Glaukomkranken.)** *Klin. Monatsbl. f. Augenheilk.*, Jan.-Feb., 1923.

(10) This is a long paper giving the results of clinical examination of 100 glaucoma patients. There is no reference to the refraction of the patients' eyes and no mention of any of the usual theories of the production of glaucoma. Some of the statements made will probably not meet with acceptance, e.g., "it is taken for granted by all authors of to-day that vascular changes form the anatomical basis for glaucoma." Notwithstanding this, the paper contains some interesting observations.

The patients were examined with regard to the condition of heart, lungs, aorta (by X-ray), kidneys, blood pressure, and Wassermann reaction by competent observers. The findings were as follow:

1. 90 cases showed changes of the heart and vascular system.
2. 3 cases normal heart and vascular system, but a positive Wassermann.
3. 7 cases had normal heart and vascular system, and negative Wassermann.
4. 62 cases showed raised blood pressure—59 cases had chronic aortitis.
5. The commonest causes of the vascular changes were syphilis, alcoholism and old age.
6. Age incidence.

Under 30	... ...	1 case.
31-40	... ...	2 cases.
41-50	... ...	26 „
51-60	... ...	30 „
61-70	... ...	31 „
71-80	... ...	9 „
81-90	... ...	1 case.

Sex—35 men, 65 women.

7. Syphilis—46 proved cases, 11 suspected.

Of the 29 cases under 50 years, 24 were syphilitic; a patient acquiring glaucoma under the age of 50 is probably infected with syphilis.

8. Arteriosclerosis. Of the 41 cases over 60 years, 24 were arteriosclerotic, and 13 syphilitic.

Hence vascular disease belongs to the clinical picture of glaucoma, also it is to be recognized that change in the walls of the vessels in the eye is the principal and perhaps primary pathological condition in glaucoma.

The histological changes in general vascular disease and in disease of the vessels in the eye are the same; thus the same cause is responsible for the changes in the vascular walls, whether they occur in the vasa vasorum of the aorta or in the capillary network of the eye. There is, however, no connection between the rise of intraocular pressure and of blood pressure, and the incidence of the former depends on the localization of the pathological processes occurring in the vessels. Hence local treatment of the eye must be supplemented by suitable treatment of the coincident general disease.

F. A. WILLIAMSON-NOBLE.

(11) **Vail, Derrick, T. (Cincinatti).—Concerning the surgical treatment of glaucoma, with special reference to a modified Elliot Lagrange technic.** *Arch. of Ophthal.*, July, 1923.

(11) The treatment described by **Vail** for acute, subacute and secondary glaucoma follows conventional lines. With regard to what he terms the non-inflammatory type formerly known as glaucoma simplex, he makes these observations:—Operation gives a good prognosis only in those cases where "the ratio between plus tension and failing vision is predominantly towards the plus tension." Speculating on the cause of simple glaucoma, he is inclined to favour Fischer's theory. In consequence of sclerosis affecting the nutrient vessels of the eye there is not enough blood in the capillaries. Thus an abnormal accumulation of acids occurs, due to oxygen starvation, and the tissues of the eye (presumably the vitreous) swell, the iris is pushed forwards, and the filtration angle is closed.

Operation is advised if eserin fails to control the tension, vision and field. If possible, it should be performed before the periphery of the field in any part reaches 20° from the centre of fixation, because at least 5 per cent. of the remaining field is apt to be lost after the most successful operation. The operation is performed thus:—Sclero-corneal trephining by Elliot's method with a complete

iridectomy through the trephine hole "and then with blunt (? pointed) scissors the point of one blade entering the trephine opening, making a 3 mm. cut through the sclero-cornea parallel with the periphery of the cornea to the right, then re-entering the point of one blade of the scissors in the trephine hole making another 3 mm. cut through the sclero-cornea to the left." Twenty-one eyes have been treated in this way in the last two years, with immediate success in all, and only two ultimate failures. No miotics were used after operation.

F. A. WILLIAMSON-NOBLE.

(12) **Weekers, L. (Liège). Intravenous injections of hypertonic solutions in glaucoma. (Les injections intraveineuses de solutions hypertoniques dans le glaucome.)** *Arch. d'Ophtal.*, Sept., 1923.

(12) **Weekers** begins his paper with the sentence "In spite of the many attempts which have been made the internal treatment of glaucoma does not appear to have yielded any really useful results."

He then reviews some of the work which has been done in this direction and proceeds: "I have practised intravenous injections of hypertonic solutions in a certain number of cases of glaucoma, following the method adopted by Cushing in cerebral hypertension; this consists in injecting into the veins a sterile aqueous solution of NaCl, of 30 per cent. strength, in an average dose of 5 c.cm. These injections, which may be repeated, should be administered very slowly, at a rate not above 1 c.cm a minute. With this precaution the injections, which are free from danger, are unaccompanied by any inconvenience save in nervous patients who may complain of slight malaise and occasional sweating. In some cases I have counted the pulse and measured the arterial pressure before and after the injection and have failed to note any material effect upon the cardio-vascular system; occasionally there has been slight acceleration of the pulse rate and in other cases slight diminution. The diuretic effect of the treatment is very manifest."

Following these statements the author gives notes of cases subjected to this treatment, divided into three groups according to the nature of the glaucoma, acute, chronic, secondary. The paper terminates with the following conclusions:

"The results obtained by the injection of hypertonic solutions into the veins vary in the different clinical forms of glaucoma. The hypotonising action of this treatment is very pronounced in acute glaucoma. One or more injections administered as the sole treatment, without any local measures, lead to a notable reduction of ocular hypertension. This treatment therefore proves a valuable means of reducing tension in an eye attacked by glaucoma, preliminary to operative procedures.

The favourable effect of these injections on the glaucomatous condition is, however, very transient, lasting only a day or two. Even if repeated they fail to maintain the result first obtained. In spite of fresh injections the intra-ocular pressure rises to its former height and may even surpass it. The action of intravenous injections assists the action of miotics. The two measures should therefore be combined. In glaucoma of the haemorrhagic type and in absolute glaucoma intravenous injections as a rule have very little effect."

In chronic glaucoma and in the secondary forms the result of this treatment is very slight or fails entirely. In doses which are clinically employable intravenous injection of hypertonic solutions has little or no effect on eyes of which the tension, previous to the injection, is normal or below normal.

J. B. LAWFORD.

II.—ANAPHYLAXIS

(1) **von Szily and Luciani (Freiburg i. B).—Experiments on anaphylaxis with old tuberculin (Koch) by various methods, together with remarks on the so-called "sympathetic specific sensitivization."** (**Anaphylaxieversuche mittels Alttuberkulin (Koch) bei verschiedener Anwendungsweise, nebst Bemerkungen ueber sog. "sympathische spezifische Sensibilisierung."**) *Klin. Monatsbl. f. Augenheilk.*, July-August, 1915.

(1) The experiments of **von Szily** and **Luciani** were undertaken with the object of verifying or controverting the results obtained by Dold and Rados. These observers found that it was possible, by injecting old tuberculin into one eye of a rabbit, to increase the reaction produced by a similar injection into the other eye, whereas the sensitiveness of the eyes was not affected or not so easily affected by subcutaneous injections.

Having first ascertained that a dilution of old tuberculin of 1-750 was the weakest that could normally cause perceptible irritation, when a dose of 0·1 cc. was injected into the corneal lamellae, they proceeded to sensitize rabbits by injecting them with old tuberculin subcutaneously, into the anterior chamber, and into the cornea. Numerous experiments were performed and are described in detail. The results were negative, as the dilution required to produce response remained the same whether the animal had been injected beforehand or not. There is, therefore, no sensitivization of one eye from the other eye or of the eyes from a subcutaneous injection

in respect of old tuberculin, nor is there any proof of the existence of an "inflammatory non-specific sensitivization of symmetrically placed organs." Inferences, based on the experiments of Dold and Rados with tuberculin and croton oil, in regard to sympathetically caused inflammations in symmetrical organs, especially sympathetic ophthalmia must still be regarded as unjustified.

H. M. TRAQUAIR.

(2) **Löwenstein, Dr. A. (Prag).—On the appearance of an attack of parenchymatous keratitis (keratitis anaphylactica) and on the origin of pannus in granular ophthalmia. (Ueber anfallsweise auftretende Hornhautentzundung (Keratitis anaphylactica) und Ueber die Entstehung des Pannus im Verlaufe der Kornerkrankheit.)** *Arch. f. Ophtal.*, Vol. XCIV, Part iii, 1917.

(2) **Löwenstein** gives details of two cases of severe trachoma of long standing with pannus in which typical interstitial keratitis developed and ran a course similar to that of the ordinary variety due to inherited syphilis. In both patients tuberculin and Wassermann tests were negative. The age of both was 25 years.

He points out that Elschnig and others have already shown that in interstitial keratitis there is an antecedent infiltration of the vessels concerned in the nutrition of the cornea, and that Wagenmann and himself have succeeded in producing an affection of the cornea of an interstitial type in animals by division of the ciliary vessels. Anatomical examination has shown that in trachomatous processes, both in the stage of infiltration and of scarring, the blood and lymph stream is seriously interfered with. In addition to the plugging with granular material and Prowaczek bodies these eyes are frequently infected secondarily with Weeks' bacillus. Löwenstein concludes that the trachomatous process acts through inflammatory infiltration and secondary scar formation on the ocular connective tissue. As a result of antigen absorption, in consequence of the trophic disturbance, the corneal albumen becomes generally and locally sensitized to the corneal tissue and may lead to the outbreak of an attack of interstitial keratitis (anaphylactic). He considers that in the same way the ordinary interstitial keratitis of hereditary syphilis has its origin in a trophic disturbance. Then, if this form of the disease is an anaphylactic reaction, the antigen is not the spirochaeta pallida, but rather the corneal tissue disorganized from trophic disturbance.

E. E. H.

III.—CONGENITAL ABNORMALITIES

(1) **Velter, M. E.—Pure coloboma of the papilla. (Colobome pur de la papille.)** *Arch. d'Ophtal.*, Nov.-Dec., 1916.

(1) **Velter** records a case of this rare congenital abnormality in a man of 28 years who declared that up to the age of 10 his left eye was completely blind, but that after that it developed a little sight. The eye was microphthalmic, but, apart from that, and the papillary coloboma, was normal. The papilla was occupied by a large circular coloboma as shown in a coloured plate that accompanies the paper. Vision was 1/40. The visual field was considerably contracted, especially above, and the blind spot was enlarged. The eye was practically emmetropic, and not, as in cases previously described, highly myopic.

E. E. H.

(2) **Lutz, Anton (Habana, Cuba).—A case of congenital enophthalmos in connection with complete absence of abduction and retraction of the eyeball in adduction.** *Arch. of Ophthal.*, Vol. XLVI. No. 3, 1917, p. 243.

(2) **Lutz** summaries the findings in this case as follows:—It is in accordance with the majority of other publications (*a*) in the complete absence of the function of the abducens, without secondary deviation, and without diplopia; (*b*) in a certain weakness of adduction and convergence and (*c*) in the retraction of the eyeball when looking toward the healthy side. It differs from them (*d*) by the very marked enophthalmos in the primary condition and (*e*) in the radiographic findings, which are described.

R. H. ELLIOT.

(3) **Shannon, C. E. G. (Philadelphia).—Two cases of congenital coloboma of iris and choroid.** *Trans. Amer. Ophthal. Soc.*, Vol. XV (1917), p. 43.

(3) **Shannon** reports two cases of coloboma of the iris and choroid in sisters. The family consisted of five girls, of whom four, including the two mentioned above, showed similar abnormalities. The father of these patients was also affected. A cousin on the paternal side had coloboma of the iris and choroid in each eye. One of the father's brothers was affected with unilateral coloboma of the iris and microphthalmos. Of the seven cases, two were myopic, two had hypermetropic astigmatism, one had mixed astigmatism, and in two the nature of the refraction could not be determined.

S. S.

IV.—MISCELLANEOUS

(1) **Cantonnet, A.—A lamp adapted for ophthalmoscopy by green light. (Lampe pour l'ophtalmoscopie à la lumière verte.)** *La Clin. Ophtal.*, Oct., 1920.

(1) **Cantonnet** describes a lamp arrangement (electric) with green and blue-green removable glass screens for the examination of the fundus by red-free light and, alternatively, by ordinary electric light. The apparatus has been designed to obviate the elaborateness of the original arrangement of Vogt by means of screens formed of solutions of copper sulphate, etc., in front of an arc lamp. The author refers to the articles on the advantages of red-free light by Darier (*La Clin. Ophtal.*, September, 1919) and Koby (*Rev. Gén. d'Ophtal.*, January, 1920), and summarizes as follows: "I merely call attention to the fact that this method of illumination makes no pretence of claiming ophthalmoscopy for itself, but that it perfects the examination by ordinary or yellow light. More especially, it renders visible in a striking way atrophic choroiditis (the atrophic areas appearing brilliant, white and fluorescent), the macular crackling (*craquelé*) in myopes, retinal haemorrhages, retinal detachment, and pigmentary degeneration of the retina. Lastly, it gives very interesting results in optic atrophy, for it indicates the disappearance of the optic fibres, which, in the normal state, are so well brought out by it."

ERNEST THOMSON.

(2) **Magitot, A. (Paris)—Kerato-conjunctivitis with nasal lesions. (Kérato-conjonctivites avec lésions nasales).** *Annal. d'Ocul.*, June, 1916.

(2) **Magitot** has seen a large number of French soldiers suffering from a form of kerato-conjunctivitis which he finds to be associated with and dependent upon nasal lesions. The characteristics of the ocular disease are as follows:—It may be uni- or bilateral. If unilateral it is on the same side as the nasal lesions. There is no abnormal secretion. The conjunctiva is red and vascular over its entire extent including the superior *cul-de-sac*. Sometimes there is a swollen appearance recalling that of follicular conjunctivitis. There is usually medium vascularization around the cornea, with slight oedema and sometimes a swelling such as precedes a phlycten. On superficial examination the cornea appears normal, but with strong magnification there is a slightly milky appearance of the entire parenchyma, and careful observation discovers a large number of very small superficial ulcerations

near the limbus. In a few cases there is a typical phlycten. The subjective symptoms are those of keratitis, photophobia, lacrimation definite but not excessive, blepharospasm, and reflex contraction of the pupil. Of 100 cases presenting these ocular symptoms which were examined by Dr. Niel, oto-rhino-laryngologist of Marseilles, 95 were found to have the following nasal lesions.

1. Acute rhinitis following coryza with or without hypertrophy of the turbinates, 30 per cent.

2. Atrophic rhinitis with or without ozoena 5 per cent.

3. Tertiary syphilis 7 per cent.

4. Maxillary or frontal sinusitis, acute or chronic, 13 per cent.

5. Polypi large enough to obstruct the lacrimo-nasal canal, 3 per cent.

6. Deviations of the septum with large spur obstructing the inferior meatus, 25 per cent.

7. Narrowing of the inferior meatus by application of the inferior turbinate against the lateral wall of the nasal fossa, 15 per cent.

8. Cicatricial lesions of the inferior meatus following resection of anterior portion of maxillary wall for cure of sinusitis, one case.

Treatment of the nasal lesions was consistently followed by improvement in the ocular condition without any special eye treatment. From bacteriological examinations made by Dr. Lemierre on a number of these cases the author concludes that the ocular symptoms are not due to extension through the lacrimal passages, and he considers that they are of nervous origin depending on the common innervation of the inferior meatus, conjunctiva and iris, the mucosa of the inferior meatus, and the anterior part of the septum, all being supplied by the nasal branch of the ophthalmic nerve. To test this theory he thoroughly cocainized the inferior meatus of a healthy subject and then touched it with 2 per cent. solution of nitrate of silver, with the result that, without producing any sensation of burning in the nose, it almost immediately caused slight hyperaemia of the limbus and bulbar conjunctiva.

W. C. SOUTER.

(3) **Poulard, A.—Sympathetic ophthalmia: statistics of penetrating wounds of the eye.** *Annal. d'Ocul.*, Vol. CLV, June, 1918.

(3) In the period from December 1, 1914, to September 15, 1917, at the Ophthalmic Centre for the 15th Region, Poulard had to deal

with a large number of eye cases, and in the present paper he concerns himself with only serious eye wounds, all degrees of penetrating wounds from simple perforation by a fine chip to complete pulping of the eye by large masses of metal. Among these cases nearly half had been already enucleated for fear of sympathetic ophthalmia before arrival at his charge. Classification of eyes not enucleated :—

Destruction, pulping, by wound ...		76	cases
Intraocular foreign body still present ...		24	,,
Globe passing to atrophy but quiet ...		65	,,
Globe keeps its shape and stability—			
(*a*) with poor vision	98		
(*b*) with good vision and, generally, adherent leucoma	67		
	—	165	,,
Irido-cyclitis cases, anterior segment ablation performed, usually with curettage		119	,,
Total cases with penetrating wound ...		858	,,
Preventive enucleations		414	,,
Not enucleated		444	,,

In all these cases sympathetic ophthalmia has been found only once, and that was in a man (Lt. D.) who had had a preventive enucleation four months previously. The figures given are for cases that have been fully investigated, but if all cases were considered the numbers would be :—

Penetrating wounds of globe	1,052 cases
Sympathetic ophthalmia	1 case

Poulard draws attention to the fact that Morax can record only 14 cases of serious sympathetic ophthalmia in a total number of cases of about 20,000—not so frequent a danger as is usually supposed.

W. C. SOUTER.

(4) **Tresilian, Fred. (Enfield).—Albuminuric retinitis as a prognostic sign.** *Brit. Med. Jl.*, Jan. 27, 1923.

(4) In October, 1914, a youth, aged 15 years, developed double pneumonia and left empyema, from which he made a good recovery. In May, 1915, he suffered from an attack of acute nephritis. Later in the course of the month he was found to have albuminuric retinitis.

In September, 1922, the urine contained 6.5 grammes of albumen to the litre. In the same month the fundi were found to be normal. However, two days later he became unconscious and died. The most interesting points in the case are: (1) The disappearance of the retinitis, and (2) the return to health good enough to work for over six years.

S.S.

(5) **Bichon, Dr. A. (Angers).—Bilateral and symmetrical abscess of the cornea in the course of pneumonia. (Abscès de la cornée bilateral et symmétrique au cours d'une pneumonie.)** *Arch. d'Ophtal.*, Feb. 1921.

(5) Bichon's patient was a man of 39 years of age who had an attack of right pneumonia. On the third day of the illness the right eye became painful and watered. Three days later the left eye was affected, but with much greater severity. The doctor, under whose care he was, treated the eyes with hot compresses and atropin. A month after the onset of the disease the patient was brought to see Bichon. The right eye then showed a moderate circumcorneal injection with corneal ulceration and a small intra-corneal abscess surrounded by diffuse infiltration; no hypopyon. The condition of the left eye was similar but much worse, and the intra-corneal abscess was widely spread through the corneal lamellae. The lacrimal passages were healthy. Bacteriological examination showed pneumococci associated with staphylococci and Weeks' bacillus. In spite of energetic treatment the left eye gave way over a large area of the cornea and had to be excised. The right eye healed with a paracentral nebula and vision, after correction, of 3/10.

E. E. H.

(6) **MacCallan, A. F., and Dolbey, Robert (Egypt).—A case of bilateral Exophthalmos caused by lymphatic oedema of the orbital tissues.** *Lancet*, November, 1922.

(6) This patient's exophthalmos was recognised as being of central origin. An extensive craniectomy was followed by death, and an autopsy was obtained. The whole pia-arachnoid was found to be much thickened, the base of the brain covered with firm adhesions, the optic tract enveloped with organised plastic lymph, and the frontal and parietal lobes, especially on the left side, much flattened. Yet at no time had there been any involvement of speech or hearing, though there had been complete loss of taste and of smell in the left nostril. The orbital tissues were very oedematous. The lateral ventricles and choroid plexuses were normal. There were nowhere signs of meningeal tubercle.

The conclusion arrived at was that this condition originated probably in an attack of cerebro-spinal fever some years previously which had cleared up and left a thickened pia-arachnoid which interfered with the return flow of lymph from the orbit.

ERNEST THOMSON.

V.—REMEDIES

(1) **Lundsgaard, K. K. K. (Copenhagen).—Tuberculosis conjunctivae.** *Acta Ophthal.*, Vol. I, Fasc. I, 1923.

(1) **Lundsgaard** maintains that practically all cases of primary tuberculosis of the conjunctiva are of endogenous origin. In twenty-five examples of the so-called primary cases he has never found tuberculosis elsewhere than in the eye. He has direct information from twelve of the patients who have been under treatment for periods varying from two to sixteen years, but, of course, this does not imply that they may not have small foci of disease in some other part of the body, for practically everybody has. Before they were treated by Finsen light all had ulcerating glands, although the results of auscultation were negative.

S.S.

(2) **Joux, M. L. (Brussels).—Gonococcal conjunctivitis and injections of milk. (Conjonctivite gonococcique et injections de lait.)** *La Clin. Ophtal.*, p. 504, Sept., 1923.

(2) **Joux** concludes with Müller, Darier, van Lint, Amat, Pillat, and others that, without affecting sensibly the general state of the patient, gonococcal conjunctivitis is happily influenced as regards its duration, its evolution, and its consequences by injections of milk; these should be always associated with the classical treatment by silver (Pillat, Lindblad), and if of themselves they do not furnish a *sterilisatio magna*, they at least constitute a powerful adjuvant means of treatment of which the medical man can "and should" (Purtscher) avail himself in the treatment of this redoubtable affection. In order to be efficacious this treatment should be begun as early as possible, to allow of the rapid hatching of proteolytic ferments in the blood; in the contrary event we merely help the purulent loss of the eye, but only in a conjunctivitis of four days' duration that has been neglected by the patient. It may be added that injections of milk have no action on ophthalmia neonatorum (gonococcal).

S.S.

(3) **Jocqs, R.—Two cases of gonococcal conjunctivitis of which one was followed by iritis, treated and cured by injections of milk. (Deux cas de conjonctivite gonococcique dont un suivi d'iritis traités et guéris par les injections de lait.)** *La Clin. Ophtal.*, Sept., 1923.

(3) **Jocqs** recounts two cases of gonococcal conjunctivitis treated successfully by injections of milk. (1). A patient, aged sixteen years, suffering from gonorrhoea, with purulent ophthalmia of one eye, of six days' duration. Gonococci in conjunctival discharge. April 1.—5 c.c. of sterilized milk injected parenterally. April 3.—Improvement. A second injection given. April 5.—Condition much better. A third injection of milk made. On April 7 the bulbar conjunctiva was still much reddened, but the discharge was lessened. The injections were discontinued, but argyrol was used several times a day. On December 5 the patient came complaining of his eye, which, upon examination, was found to be affected with iritis. The pupil did not respond to atropin, and on December 16 milk was again injected, after which pain was reduced and mydriasis was better marked. On December 19 another injection was given, and still another on December 22. On January 8 the case was regarded as cured. (2). A patient, aged 24 years, suffered from gonorrhoea and intense conjunctivitis of both eyes, of some days' duration. Ulceration of the cornea. 5 c.c. of milk injected, and argyrol applied to the eyes several times a day. Two days later improvement; a second injection made. Seven days after the first injection, although inflammatory appearances had almost disappeared, another injection was made. The patient was then looked upon as cured. The ulcerated cornea was cicatrized. Jocqs concludes that injections of milk constitute a "marvellous remedy" in the treatment of both gonococcal conjunctivitis and urethritis. As local treatment he recommends the free use of argyrol or protargol.

S.S.

(4) **MacEnri (Galway.)—Parenteral injections of milk in ulcerous keratitis. (Les injections parentérales de lait dans la kératite ulcéreuse.)** *La Clin. Ophtal.*, Sept., 1923.

(4) **MacEnri** reports three cases of hypopyon-keratitis treated by parenteral injections of milk. Briefly, Case 1 was in a man, aged 35 years, who had already lost one eye from a similar affection. The remaining eye showed an ulcer of the cornea, pus in the anterior chamber, and posterior synechiae. After failure of the usual remedies, 5 c.c. of milk were injected into the muscles of the flank, and this amount was gradually increased to

8 c.c. Six or seven hours after each injection the temperature rose, and there were rigors and *malaise*. After the second injection the eye gradually improved. At the end of three weeks the patient left hospital, the keratitis being then cured, but the sight was enfeebled in consequence of occlusion of the pupil. The second case occurred in a man of thirty years, who was at once treated by milk in addition to fomentations, dionin, and antiseptic ointment. In the third case, in a man of 28 years, injections of milk produced no good result. The condition, associated with a diplobacillus, was cured by zinc sulphate.

MacEnri has found that milk that was not too fresh (milk of the day before it is used) acts better than fresh milk.

S.S.

(5) **Dufour, Auguste (Lausanne).—Subconjunctival injections at Lausanne. La pratique des injections sous-conjonctivales à Lausanne.)** *La Clin. Ophtal.*, Oct., 1923.

(5) **Dufour,** who has used subconjunctival injections for thirty years, relates the conclusions he has reached. (1). The injection is best made at a distance of from 10 to 15 mm. from the limbus, and not, as at first recommended, as far as possible from the corneal border. The nasal side, however, should be avoided, inasmuch as injection there is apt to produce marked and lasting chemosis. (2). Formerly a small quantity of a strong solution was used, but now the author injects a larger quantity of a weaker solution. Thus, 0.5 to 1.2 per cent. instead of 2 to 10 per cent. of sodium chloride; 1 :5,000 to 1 :10,000 sublimate in place of 1 :2,000; 1 :3,000 to 1 :10,000 instead of 1 :1,000 mercury cyanide. The longer the duration of the eye mischief, the weaker the dose employed. To mercurial solutions Dufour always adds 2 per cent. of sodium chloride, since he finds that mercurial salts act more rapidly and better when given in that way. (3). As a rule, it is useless to persevere if eight injections fail to better matters, an exception being detachment of the retina. (4). To lessen the pain attending or following injection, the liquid employed should be warmed to 36° or 38° C. One part of a 1 per cent. solution of acoin may be added to three parts of mercury cyanide in sodium chloride. If sublimate must be used, novocain 1 or 2 per cent. should be injected five minutes before the medicament is applied. Aspirin, codein, or morphia may be used to prevent post-operative pain. (5). Dufour prefers to apply the remedy while the patient is in bed, and then to use cold compresses for ten minutes, and a bandage covering both eyes for two hours, and to keep the eye operated on covered for twenty-four hours, followed by semi-darkness and rest in bed for twelve hours.

When all is said and done, however, local and general means must not be neglected, as subconjunctival injection is merely an auxiliary method of treatment, although a very valuable one.

S. S.

BOOK NOTICES

The Ophthalmic Year Book. Vol. XIX. Containing bibliographies, digests and indexes of the literature of ophthalmology for the year 1922. Edited by Edward Jackson and William H. Crisp, with a long list of Collaborators. Chicago: The Ophthalmic Publishing Co. 1923. 390 pp.

This publication was merged with other publications to form the American Journal of Ophthalmology in 1918 (Vol. XIV). In order to meet with post office requirements volumes 15, 16, 17, and 18, which were issued in quarterly parts, were published under the name of Ophthalmic Literature. With the year 1923, the original form of an annual volume is resumed, under the original title. This volume brings the references up to those included in the current literature for December, 1922. On account of the reversion from quarterly to annual arrangement, the volume includes the literature of some subjects for a whole year, of others for only part of a year. The chapter on Comparative Ophthalmology covers the period since 1916.

It is very pleasing to welcome the return of the familiar old volume. The use of a larger sheet somewhat alters the shape, but in other respects the volume is more than worthy to go with its predecessors; we can suggest no higher praise.

In the general table of contents the various chapters are arranged as follows:

General methods of diagnosis; therapeutics; operations; physiologic optics; anomalies of refraction and accommodation; ocular movements; the conjunctiva; the cornea and sclera; anterior chamber and pupil; the uveal tract; sympathetic disease; glaucoma; the crystalline lens; the vitreous humour; the retina; toxic amblyopia; the optic nerve; visual tracts and centres; colour vision; defects and diseases of the eyeball; the lacrimal apparatus; diseases of the lids; diseases of the orbit; tumours; parasites; injuries of eyeball and adjacent parts; general pathology; general and extraocular diseases; comparative ophthalmology; hygiene and prophylaxis; ophthalmic sociology; history, education and

institutions. In addition to this general index there is a very full subject index and also one of the authors. Each section contains a brief digest of the papers which the editors have considered to be most important. Naturally, with the limited space at their disposal they have had to be stringent in this selection.

The majority of our readers are probably familiar with the earlier volumes. We do not think they will be disappointed with the latest. To all who are interested in the literature of the subject the volume is indispensable.

The Ophthalmoscope and how to use it, with a chapter on Diplopia. By A. FREELAND FERGUS. London: J. and A. Churchill. 48 pp. with 17 illustrations. Price, 3s. 6d. 1923.

The author of this little book has always strongly supported the importance of an adequate knowledge of the elementary optical principles on which the ophthalmoscope is founded. In the work under notice he has tried to meet the necessities of the student of general medicine by putting these principles as simply as possible.

As a result of his long experience of teaching this class of student he is convinced that their real difficulty in the use of the instrument is entirely due to their ignorance of the optical principles involved. From this point of view this very brief exposition should be of service. We would suggest that the title is a little misleading and that some such title as "The Elementary Optical Principles of the Ophthalmoscope" might have been more appropriate.

The larger half of the book contains a very useful and clear account of a sound method of analysis of diplopia, which should greatly assist the beginner to obtain a clear idea of this difficult subject.

Traité d'Ophtalmologie. By Dr. A. POULARD. 1458 pp. In 2 vols., with 710 illustrations and 3 coloured plates. Paris: Masson et Cie. 1923. 120 frs.

This treatise of ophthalmology differs in some respects from the usual type of text book. It is claimed that all matter of purely historic interest, all of a controversial nature, and also the anatomy and physiology of the eye are omitted. A sufficient knowledge of the latter subjects is taken for granted. Little pathology is included, in some parts perhaps too little. Considerable space is allotted to details of surgical technique, directions for sterilisation, and methods of administering local anaesthetics.

The chapter dealing with conjunctivitis is long and divides it into

clinical groups with the object of facilitating diagnosis. The first group concerns muco-purulent, purulent and membranous conjunctivitis; the second, contagious conjunctivitis without secretion, and includes trachoma, follicular conjunctivitis, and vernal catarrh; the third, eruptive conjunctivitis, phlyctenular and other types. There are some excellent photographs and drawings of clinical cases to illustrate this chapter.

Full consideration is taken of injuries of the globe and orbit in one chapter. Included in this are details of plastic operations which are fully explained with the help of good drawings and photographs. Some of the latter show stages in the course of treatment of actual cases. The three coloured plates are included in this chapter and illustrate satisfactorily steps in certain operations for the reconstruction of the eyelids. In this section also is included very fully the subject of sympathetic ophthalmia. No reference was found to the discoveries of recent years of the formation of typical granulomatous tissue in the uveal tract, with the presence of lymphocytes, epithelioid cells and giant cells in both primary and secondary eye. Although these discoveries are of a pathological nature, yet they have such an important bearing upon an understanding of the cause of sympathetic ophthalmia that the omission is serious. The metastatic theory of sympathetic ophthalmia is upheld in a clear exposition of the arguments excluding the above mentioned pathological findings. A very conservative opinion is expressed in the matter of treatment of the wounds of the eyeball. It is argued that sympathetic ophthalmia is a far less common disease than is generally held to be the case. The author advocates the conservative operations of evisceration or retrociliary amputation of the eyeball without removal of the contents of the globe providing that the vitreous is apparently healthy. It is stated that much unnecessary mutilation is produced by the wholesale enucleation of severely injured eyeballs. We cannot avoid the thought that the author must have been unusually fortunate in the paucity of his experience of sympathetic ophthalmia, and conclude that the majority of ophthalmic surgeons would prefer to remove, perhaps unnecessarily, a certain number of eyeballs in order to avoid the terrible calamity of the development of this disease.

The treatment of obstruction and infection of the lacrimal sac mainly by the use of probes, almost entirely given up in this country owing to the production of damage to the nasal duct, is strongly advocated by the author. He claims that the operation of extirpation of the lacrimal sac is very rarely necessary.

The treatment of strabismus is clearly explained with the help of numerous illustrations, except that in the description of the procedure of advancement one illustration does not appear to agree

with the text where the latter describes the passage of sutures in the peri-corneal region.

In the chapter on glaucoma, again, treatment is given at some length illustrated by numerous large scale drawings and diagrams. In the description of Elliot's trephine operation there are two obvious errors. (1) The conjunctival flap is described and figured as being made right up to the limbus, and to be unusually narrow at its base. (2) The trephine opening is described in the text as being made at the limbus, without the inclusion of exact details, and the disc removed by the trephine is referred to as "scleral." In the figure a circle is shown to indicate the trephine aperture, which is placed on the sclera, *superior* to the limbus and not riding over it, —i.e., entirely scleral, and not half scleral and half corneal. These details and figures belong, presumably, to the earlier descriptions of the operation of trephining. Furthermore the division of the pedicle of the disc is described *before* the performance of peripheral iridectomy. We believe the opposite order of procedure to be widely recognised as the better, in order that the iris shall not slip back into the anterior chamber before the iridectomy shall have been performed.

As may have been gathered from the above, the description of operative procedures is placed in the chapters in conjunction with the clinical description and other methods of treatment, and not treated in a section separately. This certainly would seem to be an advantage from the point of view of reference to the treatment of any particular condition.

We are of opinion that the index is decidedly unsatisfactory. It is not only short, for it occupies but 15 pages, but the arrangement is unsatisfactory. A main subject may be found alphabetically, such as *conjunctivitis*, but sub-divisions of such subjects are very difficult to locate. In this particular instance of conjunctivitis, the index is little more than a recapitulation of the table of contents. The sub-divisions of conjunctivitis are arranged in the index in the order in which they occur in the text, so that it may be necessary to read through the whole list of conjunctival conditions before the particular one that is sought can be found. Even after the labour of perusal of such a list the particular title may be absent, e.g., diphtheritic conjunctivitis, which is not included in the index under this heading or under that of membranous conjunctivitis. On the other hand, diphtheritic conjunctivitis is included in the table of contents. It would seem therefore that in some respects the table of contents is more comprehensive than the index. We feel sure that this is a serious defect, and that the utility of the treatise would be greatly enhanced for the purposes of reference if the index were extended and if sub-divisions of particular subjects were also arranged alphabetically in column.

This treatise of two volumes is not likely to appeal to the bulk of post-graduate students of ophthalmology, but will be of interest to some of those who enjoy the wide study of their subject, in that in many ways it differs in its arrangement from the ordinary well-tried text books.

The paper is of good quality, the type is particularly large, clear, and well spaced. The French is thoroughly readable and easy to understand. The illustrations are abundant and on the whole excellent.

High Blood Pressure. By J. F. HALLS DALLY. William Heinemann. 140 pp. with 23 illustrations. 12s. 6d. 1923.

The avowed object of this book is to provide for general practitioners "in condensed and applicable form the modern views regarding blood pressure," and a "handy volume in which they can readily find expressed in simple terms the essentials which they require to know."

The first 38 pages are taken up with the consideration of the clinical estimation of the systolic and diastolic pressures; the description is good and is essentially practical, the difficulties and fallacies are dealt with, and advice is given as to the best form of apparatus.

The author next deals with the physiology of the diastolic and systolic pressures, the peripheral resistance, the tone of the vessel walls, the viscosity of the blood, and physiological variations of pressure; tables showing the normal average pressures for men, women, and children at different ages are given and the influence of various physiological factors is dealt with. Throughout the book emphasis is laid on the importance of the diastolic as well as of the systolic pressure.

Twenty-five pages are given to the consideration of treatment and for many readers this will no doubt prove the most valuable part of the volume; it is dealt with on broad lines and will be found to be of real value. The author, very wisely, clearly does not subscribe to the prevalent unbalanced fashion of attributing a multitude of diseased states to oral sepsis; indiscriminate extraction of teeth does not find a place in his armamentarium of treatment.

The book is full of information and will be found helpful.

SYDNEY STEPHENSON

(1862 — 1923)

CORRESPONDENCE

AMETROPIA: ITS PREVALENCE

To the Editor of THE BRITISH JOURNAL OF OPHTHALMOLOGY

SIR,—In your last issue you review a short paper I wrote on "Visual Defects." In that paper the prevalence of ametropia in adults is roughly estimated at:—myopia 10 per cent. and hypermetropia 20 per cent. This is clearly an error and as your reviewer quotes these figures I wish you to allow me to acknowledge the slip. In adults we get four or five cases of hypermetropia to one of myopia. Long ago I altered the figures to 7 per cent. and 28 per cent., but this remains merely a surmise.

Yours truly,

J. A. WILSON.

GLASGOW,

December 1923.

OBITUARIES

In Memoriam

SYDNEY STEPHENSON

Editor, BRITISH JOURNAL OF OPHTHALMOLOGY, 1917-1923

SYDNEY HARRY STEPHENSON, whose death was announced in our last number, was born in 1862, the son of Dr. T. Appleby Stephenson, of Nottingham; his early years were spent in his native town and part of his education was received at the Nottingham High School, but most of it was obtained at Epsom College, which he entered in 1875, and where he stayed for four years. His medical training was obtained at the Middlesex, St. Mary's, and the London Hospitals, and at Edinburgh University, where he graduated M.B., C.M. in 1884, having previously taken the

L.S.A. in London. He passed the F.R.C.S.(Edin.) in 1889, and proceeded to the D.O.(Oxon.) in 1907. This last diploma he took, chiefly, to encourage the younger men.

His father had had much to do with the founding of the Nottingham Eye Hospital, and he himself had gained some experience in ophthalmology before he came to London; after qualification he worked principally at the Royal Westminster Ophthalmic Hospital, in the clinic of Mr. Adams Frost, an honoured master.

Apart from his hospital appointments of ophthalmic surgeon to the Evelina Hospital; King Edward's Memorial Hospital, Ealing; the Queen's Hospital for Children and Queen Charlotte's Hospital, and his private practice, the main features of Stephenson's life fall naturally into two divisions, his work as a journalist and that in connexion with the schools for children suffering from contagious eye disease in the metropolitan area; this latter work was of real and permanent value to the public and will be dealt with first. In the summer of 1886 an epidemic of trachoma broke out in the schools of the London district and Stephenson was placed in control of the ophthalmia school at Norwood; for two years he worked there and by segregating those afflicted with trachoma and placing them under the care of a resident governess he was able to improve the health of the children attending the schools enormously, while ensuring their education. In 1890, a similar outbreak occurred at the Metropolitan Poor Law Schools at Hanwell, and he was appointed to deal with it; an isolation block, designed to accommodate 400 children was built, and as a consequence the percentage of trachoma at Hanwell declined from 33 per cent. in 1889 to 0.6 per cent. in 1896, while again the education of the children, whom he loved, was continued. In this year Stephenson was invited by the Local Government Board to make an inspection of all the children attending the Poor Law Schools in the Metropolis. He found a percentage of 5.72 affected with trachoma, and his advice that these infected children should be housed in two hospital schools on the "cottage" or "small block" plan was adopted by the authorities. His fourteen years' work at Hanwell bore rich fruit, and the Metropolitan Asylums Board adopted the same policy in the establishment of the trachoma schools at Swanley and Brentwood.

Of Stephenson's work as a journalist much might be written, for he wrote much. Besides his well-known book on Ophthalmic Nursing, his monograph on Ophthalmia Neonatorum, which incorporated the Middlemore prize essay for 1907 (the language of which has been likened to that of Macaulay) of the British Medical Association; and his translations from the French and

German, there was *The Ophthalmoscope*. This journal he founded in 1903, and fourteen volumes appeared under his editorship before it was incorporated with the Royal London Ophthalmic Hospital Reports and the Ophthalmic Review in the BRITISH JOURNAL OF OPHTHALMOLOGY. *The Ophthalmoscope* rapidly became the most widely circulating journal in British Ophthalmology; Stephenson's amazing energy and capacity for work, together with a methodical mind of a very high order enabled him to maintain the highest standard of utility in this publication from start to finish, for *The Ophthalmoscope* was Sydney Stephenson, and when the journals were amalgamated in 1917 it was natural that he should be appointed editor. As editor he commanded the respect and, indeed, the affection of ophthalmologists throughout the English-speaking world; it would not be unfair to say that he was one of the principal liaison officers between English, French and American ophthalmology of his time.

Those fourteen volumes of *The Ophthalmoscope* together with the first seven volumes of the BRITISH JOURNAL OF OPHTHALMOLOGY form his best memorial, *monumentum aere perennius*.

It remains to speak of his other interests: he was a many-sided man; his connexion with the Oxford Ophthalmological Congress, first as Secretary, and after the death of Mr. Doyne, as Master, was a long and honourable one. He was a great Master; his efforts, ably seconded by those of the Deputy Master, Mr. Adams, and Secretary, Mr. Cridland, were responsible for the unvarying success of these annual meetings; the Congress under his guidance, was always a harmonious one; never was a carping word spoken and the youngest member was made to feel himself on equal terms with the eldest.

Together with Colonel Tubby he founded the Society for the study of Disease in Children, which is now merged in the Section for Diseases of Children of the Royal Society of Medicine: this he regarded as his favourite achievement. For thirty-six years he was a member of the Ophthalmological Society of the United Kingdom, a society which he served in the capacity of Secretary, Member of Council, and Vice-President; he rarely missed a meeting and his papers and contributions to discussions were marked by an extreme lucidity of expression and by a thoroughness in compilation, the result of an extensive knowledge of the literature of his profession, and very accurate clinical observation.

He was an ophthalmic referee under the Workmen's Compensation Act for a great many circuits, not only in the London County Courts, for his range extended into Kent and most of the home counties. Stephenson had a famous memory, he was able to read through an article and then repeat it word for word, this was a family gift, for an uncle of his had the same ability. In speaking

in public he had a gift of oratory and this coupled with a beautiful voice and ready wit made him always worth hearing.

In practice, he had most of the gifts which make for success; tact, sympathy and loyalty to colleagues and to his ideals; he never forgot a kindness, and his innumerable acts of kindness to others will be remembered by the recipients "until time itself with them shall be no more."

As a young man, Stephenson enjoyed good health, he was a member of the Epsom College Rugby football fifteen, and captained the Edinburgh side for one year; he was a very fine swimmer, an expert fisherman and a good boxer, he was also fond of cycling, but he was, of late years, rather lame in one leg. His health broke up eight years ago, and it is remarkable that he was able to carry on as he did in the face of physical disabilities which would have daunted most people. His strength of character was well shown by the splendid pluck with which he faced the troubles of the last years. His long illness came to an end quite peacefully on December 15, 1923.

To his widow and two children, the sympathy of ophthalmologists all the world over will go out in their bereavement.

AVE ATQUE VALE.

"Content thee, howso'er, whose days are done;
There lies not any troublous thing before,
Nor sight nor sound to war against thee more,
For whom all winds are quiet as the sun,
All waters as the shore."

WE have to record, with deep regret, the death of Dr. Stirling who was our representative on the Editorial Committee for Montreal.

Dr. Stirling was born in Halifax, Nova Scotia, in 1859. He received his primary education in that town, and subsequently went to Edinburgh for his medical studies, graduating there in 1884. After serving for a time as a resident in the Royal Infirmary at Edinburgh, Dr. Stirling proceeded to the Continent and pursued his studies at Vienna and Berlin, and afterwards in London, being attached for a time to the Royal London Ophthalmic Hospital. Returning to Canada in 1887 Dr. Stirling took up practice in Montreal. He was professor of ophthalmology at Bishop's College, which then maintained a medical faculty in Montreal, afterwards merged with McGill. He succeeded the late Dr. Frank Buller in the similar chair at the McGill University and became ophthalmologist to the Royal Victoria Hospital. He also held the appointments of oculist

and aurist to the Montreal General Hospital, and consulting oculist and aurist to the Montreal Dispensary and the Montreal Foundling and Baby Hospital.

Dr. Stirling was admitted to the *ad eundem* degree of the M.D., C.M. at McGill in 1911. He possessed a professional reputation which extended far beyond Montreal, and he was much esteemed and deeply regretted by both his professional colleagues and his patients.

NOTES

Deaths

WE regret to record the recent deaths of Sir JOHN TWEEDY and of Mr. A. C. ROPER. We hope to publish obituary notices in our next number.

The deaths of the following ophthalmic surgeons in the United States are announced:—JOHN W. MURPHY, of Cincinnati, Emeritus Professor of Ophthalmology, University of Cincinnati, aged 67; ROBERT SMITH DOAK of Nashville, Tennessee, aged 57; WILLIAM L. WOOD of Portland, Oregon, aged 59; GEORGE EDGAR BENSON, of Minneapolis, aged 46; LEWIS S. DIXON of Boston, aged 77: HERBERT HARLAN of Baltimore, aged 67, a member of the National Board of Medical Examiners; JAMES H. CRAWFORD of Martin, Ga, aged 51.

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New Year's Day Honours

AMONG the recipients of honours in the list for New Year's Day occurs the name of HENRY LINDO FERGUSON, M.D., C.M.G., who has been made a Knight Bachelor. Sir Henry Lindo Ferguson is well known in New Zealand, where he is Dean of the Faculty of Medicine in the University of Otago. He is a member of the editorial committee of the BRITISH JOURNAL OF OPHTHALMOLOGY. We tender him our hearty congratulations.

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Appointments

MR. DAVID WILSON, late honorary ophthalmic surgeon to the Huddersfield Royal Infirmary, has been appointed honorary ophthalmic surgeon to the Torbay and Newton Abbot Hospitals and oculist to the Torquay Education Authority.

Dr. GORDON RENWICK has been appointed honorary assistant surgeon to the Royal Eye Hospital, Manchester.

Presentation to a Medical Man

DR. ADOLPH BRONNER, who has been for 34 years honorary surgeon to the Royal Eye and Ear Hospital, Bradford, and whose father was one of the founders of the hospital, was presented, on his retirement from the post, with two travelling bags and a gold cigarette case. The balance of the money subscribed was presented to Dr. Bronner, who expressed his intention of buying with it something useful for the hospital. A tablet recording Dr. Bronner's services has also been placed in the hospital.

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Hospital Extension

THE committee of the Kent County Ophthalmic Hospital, Maidstone, have received a donation of £10,000 from Mr. J. W. Wheeler Bennett, High Sheriff of Kent, for the extension and improvement of the institution.

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Convention of English-speaking Ophthalmological Societies

WE understand that a Convention of English-speaking Ophthalmological Societies will be held in London in July, 1925, under the aegis of the Ophthalmological Society of the United Kingdom. We expect to be able to publish details at an early date.

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Royal London Ophthalmic Hospital

THE Annual Dinner of past and present students of the Royal London Ophthalmic Hospital will be held at the Langham Hotel, Portland Place, on Thursday, February 7, 1924, at 7 for 7.30 o'clock under the chairmanship of Mr. E. Treacher Collins, Consulting Surgeon to the Hospital. Tickets (excluding wine) 15s.; applications should be made to Sir William Lister, 24, Devonshire Place, W.1.